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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/805,183

03/19/2004

John L. Falconer

5-04

7410

23713

7590

08/08/2006

GREENLEE WINNER AND SULLIVAN P C  
4875 PEARL EAST CIRCLE  
SUITE 200  
BOULDER, CO 80301

EXAMINER

GREENE, JASON M

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/805,183

Applicant(s)

FALCONER ET AL.

Examiner

Jason M. Greene

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 30 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/11/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-18 in the reply filed on 10 July 2006 is acknowledged. The traversal is on the ground(s) that the inventions are sufficiently related so as not to impose an undue burden upon the Examiner. This is not found persuasive because the invention of Group III requires an additional search not necessary for the elected invention. However, as noted in the original restriction requirement, the product claims will be examined along with the elected invention since the application recites claims directed to a product, a method for its manufacture, and a method for its use, and since the use as claimed cannot be practiced with a materially different product.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5-7, 9, 12, 13 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Soria et al. (US 6,472,016 B1).

Soria et al. discloses a method for making a crystalline SAPO membrane comprising providing a porous support having a pore size of 2  $\mu\text{m}$ , preparing an aqueous SAPO forming gel comprising a quaternary organic ammonium templating agent, aging the gel for 72 hours at room temperature ( $\sim 298\text{K}$ ), contacting the porous support with the aged gel, heating the porous support and the gel to 170-220 $^{\circ}\text{C}$  (443-493K) to form a layer of SAPO crystals on the surface of the support, washing and drying the support and SAPO layer, and calcining the SAPO layer to remove the templating agent in col. 4, line 27 to col. 11, line 25.

4. Claims 19, 20 and 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Soria et al. (US 6,472,016 B1).

Soria et al. discloses a supported membrane comprising a porous support and SAPO crystals which are present within at least some of the pores of the support and which form a layer on at least one side of the support, wherein the pore size of the support is 2  $\mu\text{m}$  and the thickness of the SAPO layer is 3  $\mu\text{m}$ , and wherein the porous support is in the form of a tube and the SAPO crystals are present within the tube pores and form layers on both the inside and the outside of the tube in col. 4, line 27 to col. 11, line 25.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-4, 8, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soria et al. (US 6,472,016 B1) in view of Yoshikawa et al. (US 6,503,294 B2).

Soria et al. does not disclose the specific SAPO or the templating agent being tetraethyl ammonium hydroxide.

Yoshikawa et al. discloses a similar method of making a SAPO membrane wherein the SAPO comprises SAPO-34 and the templating agent is tetraethyl ammonium hydroxide in col. 24, line 48 to col. 25, line 4.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the SAPO-34 of Yoshikawa et al. into the method of Soria et al. to provide a membrane having a specific pore size for a desired separation, as is well known in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the TEOH of Yoshikawa et al. into the method of Soria et al. in that substituting one known templating agent for another would have been obvious to one having ordinary skill in the art.

7. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soria et al. (US 6,472,016 B1) in view of the publication "Separation of Light Gas Mixtures Using SAPO-34 Membranes".

Soria et al. does not disclose repeating the steps recited in claim 1. The publication "Separation of Light Gas Mixtures Using SAPO-34 Membranes" (hereinafter "the publication") teaches repeating the steps until the membrane is impermeable to Nitrogen at page 780, col. 2, lines 9-37.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the step repeating of the publication into the method of Soria et al. to insure that the membrane is continuous and defect-free, as suggested by the publication at page 780, col. 2, lines 9-37.

8. Claims 21-23, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soria et al. (US 6,472,016 B1) in view of Yoshikawa et al. (US 6,503,294 B2).

With regard to claims 21-23, Soria et al. does not disclose the specific SAPO.

Yoshikawa et al. discloses a similar SAPO membrane wherein the SAPO comprises SAPO-34 in col. 24, line 48 to col. 25, line 4.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the SAPO-34 of Yoshikawa et al. into the membrane of Soria et al. to provide a membrane having a specific pore size for a desired

separation, as is well known in the art.

With regard to claims 28 and 29, the combined membrane of Soria et al. and Yoshikawa et al. will inherently exhibit the recited selectivity and permeate concentration since the membrane has the same structure as the claimed membrane.

### ***Conclusion***


9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Lai et al., Verduijn et al. and Barri et al. references disclose similar methods for making SAPO membranes.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason M. Greene  
Primary Examiner  
Art Unit 1724

  
8/5/06

jmg  
August 5, 2006